

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

Advanced Processor Technologies LLC

Plaintiff,

V.

Altera Corporation,

Defendant.

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Civil Action No. 2:12-cv-602

Jury Trial Demanded

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Advanced Processor Technologies LLC (“APT”) files this Complaint against Defendant Altera Corporation (“Altera”) and alleges as follows:

SUBJECT MATTER JURISDICTION AND VENUE

1. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 101, *et seq.* This Court has subject matter jurisdiction over this patent infringement action under 28 U.S.C. §§ 1331, 1332, and 1338(a).

2. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391 and/or 1400.

PARTIES AND PERSONAL JURISDICTION

3. Plaintiff APT is a limited liability company organized and existing under the laws of the State of Texas with a principal place of business at 6136 Frisco Square Blvd., 4th floor, Frisco, Texas 75034.

4. On information and belief, Defendant Altera is a corporation organized under the laws of the State of Delaware and maintains its principal executive offices at 101 Innovation Drive, San Jose, California, 95134.

5. On information and belief, Altera is registered to do business in the State of Texas and has conducted and continues to conduct business within the State of Texas, including maintaining offices at Altera Austin Technology Center, 5113 Southwest Parkway Austin, Texas 78735. Upon information and belief, Altera has also availed itself of the laws of Texas at least by employing Texas residents within Texas. Altera directly or through intermediaries ships, distributes, offers for sale, sells, and advertises its products, including the products accused of infringement in this case, in the United States, the State of Texas, and the Eastern District of Texas.

6. This Court has personal jurisdiction over Altera. Altera has conducted and does conduct business within the State of Texas. Altera, directly or through intermediaries, imports, ships, distributes, offers for sale, sells, and/or advertises (including the provision of an interactive web page) its products in the United States, the State of Texas, and the Eastern District of Texas.

7. Additionally, Altera has purposefully and voluntarily sold the products accused of infringement in this case directly to consumers in the Eastern District of Texas and/or placed one or more of the accused products, as described below, into the stream of commerce with the expectation that they will be purchased by consumers in the Eastern District of Texas. Altera has thus committed patent infringement within the State of Texas, and particularly within the Eastern District of Texas.

**THE PATENTS-IN-SUIT:
U.S. PATENT NO. 5,796,978;
U.S. PATENT NO. 6,047,354; and
U.S. PATENT NO. 6,092,172**

Ownership

8. United States Patent No. 5,796,978 (the '978 patent), entitled "Data Processor Having an Address Translation Buffer Operable With Variable Page Sizes," was duly and legally issued to Hitachi, Ltd. (Hitachi) on August 18, 1998. A copy of the '978 patent is attached as Exhibit A and is made a part of this Complaint.

9. United States Patent No. 6,047,354 (the ‘354 patent), entitled “Data Processor For Implementing Virtual Pages Using a Cache and Register,” was duly and legally issued to Hitachi on April 4, 2000. The ‘354 patent is a continuation of the ‘978 patent. A copy of the ‘354 patent is attached as Exhibit B and is made a part of this Complaint.

10. United States Patent No. 6,092,172 (the ‘172 patent), entitled “Data Processor and Data Processing System Having Two Translation Lookaside Buffers,” was duly and legally issued to Hitachi on July 18, 2000. A copy of the ‘172 patent is attached as Exhibit C and is made a part of this Complaint.

11. Plaintiff APT is currently the assignee and sole owner of the patents-in-suit (and all worldwide counterparts), including without limitation all rights to sue for past, present and future infringement, including the right to collect and receive any damages, royalties or settlements for such infringements, all rights to sue for injunctive or other equitable relief, and any and all causes of action relating to any inventions of these patents.

Brief Summary of the Technology

12. Virtual memory is a memory management technique that allows a program to be designed as though there is only a single hardware memory device (*i.e.*, the “virtual” single memory device containing *logical* memory addresses) when, in fact, there may be a plurality of memory devices with portions of each supporting the program (*i.e.*, the physical memory devices containing *physical* memory addresses). Systems that employ virtual memory, among other things, may use physical memory more efficiently and render the programming of applications easier.

13. Computer operating systems that employ virtual memory typically contain a data processor that supports an address translation mechanism in order to translate a logical memory address from the virtual memory (*e.g.*, when requested by a program) into a physical memory

address from the physical memory. Such systems may do so by utilizing, among other things, a buffer memory, which may be known as a translation lookaside buffer (TLB).

14. Each of the patents-in-suit discloses data processors that achieve greater processing efficiency through novel and non-obvious improvements to data processor virtual memory structure and operation.

INFRINGEMENT OF THE '978 PATENT

15. Plaintiff realleges and incorporates herein by reference the allegations stated in paragraphs 1-14 of this Complaint.

16. On information and belief, Altera has been and continues to violate 35 U.S.C. § 271(a) by directly infringing the '978 patent by actions comprising making, using, selling, offering for sale and/or importing data processors and/or devices containing the same, including without limitation, products implementing the Arria[®] V SoC FPGAs and Cyclone[®] V SoC FPGAs containing dual ARM Cortex-A9 MPCore processors, or products containing the same, and other products with virtual memories covered by one or more claims of the '978 patent.

17. On information and belief, at least since receiving notice of the '978 patent, including at a minimum from this lawsuit, Altera has been and continues to violate 35 U.S.C. § 271(b) by actively inducing others to directly infringe the '978 patent. Such direct infringers include (i) Altera's direct and indirect customers, including for example and without limitation, manufacturers of devices that incorporate the foregoing data processors, such as manufacturers of computers, consumer electronics and components therefor; (ii) resellers of the foregoing data processors and devices containing the same; and (iii) end users such as consumers who use devices that incorporate the foregoing data processors. On information and belief, at least since receiving notice of the '978 patent, Altera is and/or has been actively inducing these direct infringers to directly infringe the '978 patent by conduct including marketing, promoting (including providing

instructions for design, development and use), selling, offering for sale and/or importing the foregoing data processors. On information and belief, at least since receiving notice of the '978 patent, Altera has known that the activities of the foregoing third parties constitutes direct infringement of the '978 patent and has specifically intended the foregoing third parties to directly infringe the '978 patent.

18. On information and belief, at least since receiving notice of the '978 patent, including at a minimum from this lawsuit, Altera has been and continues to violate 35 U.S.C. § 271(c) by contributing to the direct infringement of the '978 patent by others. Such direct infringers include (i) Altera's direct and indirect customers, including for example and without limitation, manufacturers of devices that incorporate the foregoing data processors, such as manufacturers of computers, consumer electronics and components therefor; (ii) resellers of the foregoing data processors and devices containing the same; and (iii) end users such as consumers who use devices that incorporate the foregoing data processors. At least since receiving notice of the '978 patent, Altera is and/or has been contributing to the direct infringement of the foregoing direct infringers by conduct including selling, offering for sale and/or importing the foregoing data processors. The infringing data processors are specifically designed for use as part of data processor chips, including CPUs and GPUs, and the claims of the '978 patent relate to data processors with virtual memories. Accordingly, the foregoing data processors are a material part of the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use. On information and belief, at least since receiving notice of the '978 patent, Altera has studied the claims of the '978 patent and compared it with the foregoing accused data processors. Accordingly, on information and belief, at least since receiving notice of the '978 patent, the foregoing data processors have been known by Altera to be especially made or especially adapted for use in an infringement of the '978 patent.

19. Accordingly, Altera has infringed and continues to infringe, either literally or under the doctrine of equivalents, one or more claims of the '978 patent without license or authority.

20. Plaintiff APT has suffered damages as a result of Altera's infringement and will continue to suffer damages as a result of Altera's infringement.

INFRINGEMENT OF THE '354 PATENT

21. Plaintiff realleges and incorporates herein by reference the allegations stated in paragraphs 1-14 of this Complaint.

22. On information and belief, Altera has been and continues to violate 35 U.S.C. § 271(a) by directly infringing the '354 patent by actions comprising making, using, selling, offering for sale and/or importing data processors and/or devices containing the same, including without limitation, products implementing the Arria[®] V SoC FPGAs and Cyclone[®] V SoC FPGAs containing dual ARM Cortex-A9 MPCore processors, or products containing the same, and other products with virtual memories covered by one or more claims of the '354 patent.

23. On information and belief, at least since receiving notice of the '354 patent, including at a minimum from this lawsuit, Altera has been and continues to violate 35 U.S.C. § 271(b) by actively inducing others to directly infringe the '354 patent. Such direct infringers include (i) Altera's direct and indirect customers, including for example and without limitation, manufacturers of devices that incorporate the foregoing data processors, such as manufacturers of computers, consumer electronics and components therefor; (ii) resellers of the foregoing data processors and devices containing the same; and (iii) end users such as consumers who use devices that incorporate the foregoing data processors. On information and belief, at least since receiving notice of the '354 patent, Altera is and/or has been actively inducing these direct infringers to directly infringe the '354 patent by conduct including marketing, promoting (including providing instructions for design, development and use), selling, offering for sale and/or importing the

foregoing data processors. On information and belief, at least since receiving notice of the '354 patent, Altera has known that the activities of the foregoing third parties constitutes direct infringement of the '354 patent and has specifically intended the foregoing third parties to directly infringe the '354 patent.

24. On information and belief, at least since receiving notice of the '354 patent, including at a minimum from this lawsuit, Altera has been and continues to violate 35 U.S.C. § 271(c) by contributing to the direct infringement of the '354 patent by others. Such direct infringers include (i) Altera's direct and indirect customers, including for example and without limitation, manufacturers of devices that incorporate the foregoing data processors, such as manufacturers of computers, consumer electronics and components therefor; (ii) resellers of the foregoing data processors and devices containing the same; and (iii) end users such as consumers who use devices that incorporate the foregoing data processors. At least since receiving notice of the '354 patent, Altera is and/or has been contributing to the direct infringement of the foregoing direct infringers by conduct including selling, offering for sale and/or importing the foregoing data processors. The infringing data processors are specifically designed for use as part of data processor chips, including CPUs and GPUs, and the claims of the '354 patent relate to data processors with virtual memories. Accordingly, the foregoing data processors are a material part of the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use. On information and belief, at least since receiving notice of the '354 patent, Altera has studied the claims of the '354 patent and compared it with the foregoing accused data processors. Accordingly, on information and belief, at least since receiving notice of the '354 patent, the foregoing data processors have been known by Altera to be especially made or especially adapted for use in an infringement of the '354 patent.

25. Accordingly, Altera has infringed and continues to infringe, either literally or under the doctrine of equivalents, one or more claims of the '354 patent without license or authority.

26. Plaintiff APT has suffered damages as a result of Altera's infringement and will continue to suffer damages as a result of Altera's infringement.

INFRINGEMENT OF THE '172 PATENT

27. Plaintiff realleges and incorporates herein by reference the allegations stated in paragraphs 1-14 of this Complaint.

28. On information and belief, Altera has been and continues to violate 35 U.S.C. § 271(a) by directly infringing the '172 patent by actions comprising making, using, selling, offering for sale and/or importing data processors and/or devices containing the same, including without limitation, products implementing the Arria[®] V SoC FPGAs and Cyclone[®] V SoC FPGAs containing dual ARM Cortex-A9 MPCore processors, or products containing the same, and other products with virtual memories covered by one or more claims of the '172 patent.

29. On information and belief, at least since receiving notice of the '172 patent, including at a minimum from this lawsuit, Altera has been and continues to violate 35 U.S.C. § 271(b) by actively inducing others to directly infringe the '172 patent. Such direct infringers include (i) Altera's direct and indirect customers, including for example and without limitation, manufacturers of devices that incorporate the foregoing data processors, such as manufacturers of computers, consumer electronics and components therefor; (ii) resellers of the foregoing data processors and devices containing the same; and (iii) end users such as consumers who use devices that incorporate the foregoing data processors. On information and belief, at least since receiving notice of the '172 patent, Altera is and/or has been actively inducing these direct infringers to directly infringe the '172 patent by conduct including marketing, promoting (including providing instructions for design, development and use), selling, offering for sale and/or importing the

foregoing data processors. On information and belief, at least since receiving notice of the '172 patent, Altera has known that the activities of the foregoing third parties constitutes direct infringement of the '172 patent and has specifically intended the foregoing third parties to directly infringe the '172 patent.

30. On information and belief, at least since receiving notice of the '172 patent, including at a minimum from this lawsuit, Altera has been and continues to violate 35 U.S.C. § 271(c) by contributing to the direct infringement of the '172 patent by others. Such direct infringers include (i) Altera's direct and indirect customers, including for example and without limitation, manufacturers of devices that incorporate the foregoing data processors, such as manufacturers of computers, consumer electronics and components therefor; (ii) resellers of the foregoing data processors and devices containing the same; and (iii) end users such as consumers who use devices that incorporate the foregoing data processors. At least since receiving notice of the '172 patent, Altera is and/or has been contributing to the direct infringement of the foregoing direct infringers by conduct including selling, offering for sale and/or importing the foregoing data processors. The infringing data processors are specifically designed for use as part of data processor chips, including CPUs and GPUs, and the claims of the '172 patent relate to data processors with virtual memories. Accordingly, the foregoing data processors are a material part of the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use. On information and belief, at least since receiving notice of the '172 patent, Altera has studied the claims of the '172 patent and compared it with the foregoing accused data processors. Accordingly, on information and belief, at least since receiving notice of the '172 patent, the foregoing data processors have been known by Altera to be especially made or especially adapted for use in an infringement of the '172 patent.

31. Accordingly, Altera has infringed and continues to infringe, either literally or under the doctrine of equivalents, one or more claims of the '172 patent without license or authority. Plaintiff APT has suffered damages as a result of Altera's infringement and will continue to suffer damages as a result of Altera's infringement.

DEMAND FOR JURY TRIAL

Plaintiff APT demands a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for judgment as follows:

- (a) that Defendant has infringed one or more claims of the '978 patent;
- (b) that Defendant has infringed one or more claims of the '354 patent;
- (c) that Defendant has infringed one or more claims of the '172 patent;
- (d) that Plaintiff be awarded damages from Defendant adequate to compensate for Defendant's infringement, but in no event no less than a reasonable royalty, as provided by 35 U.S.C. § 284;
- (e) that a reasonable royalty going forward be awarded for Defendant's future infringement, or in the alternative, that an injunction be issued against further infringement by Defendant and their directors, officers, agents, servants, employees, attorneys and all persons in active concert or participation with them; and
- (f) that Plaintiff be granted such other and further relief, in law or in equity, as the Court deems just and equitable.

Dated: September 18, 2012

Respectfully Submitted,

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